



INVITED COMMENTARY

The Development of a VBHOM-based Outcome Model for Lower Limb Amputation Performed for Critical Ischemia

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The authors have developed an outcome model, based on an audit tool using similar principles and shown to be feasible with index arterial operations, in patients having undergone lower limb amputation. They conclude that this minimum data set model can be used to simplify comparative audit regarding in-hospital mortality after amputations and the authors are to be congratulated for these interesting and important results.

The authors also suggest that the model, after further validation, may allow individual risk prediction when selecting between performing an amputation or not in critical limb ischemia (CLI) patients. For such use, the target group is not identical to the group which was selected for and had undergone amputation in the present study. The in-hospital mortality rate (32%) is very high compared to recent series,¹ suggesting a selected patient population in the present study. This raises some questions. Were all amputations reported to the registry? Quality control data for this is not reported. How were patients selected for amputation? According to the text, most amputations were performed for gangrene although some were for pain control and non-healing ulcerations, but numbers are not given. Exact indications are often difficult to define in registry studies. 579 patients reported to a database were included. 41 patients were then excluded. All included patients ought to have been followed for mortality. Further questions include: which patients with gangrene were not offered amputation? According to the text, patients who were

not believed to survive were not offered amputation. Numbers and results for these patients are unknown. Also patients believed to have poor quality of life after surgery were not offered amputation, numbers and results are unknown. The patient population in this study thus may be rather different from the target population for individual risk prediction (i.e. when selecting patients for amputation or not), reducing the external validity of the study for this purpose.

Individual risk prediction is important for relative indications for surgery, since treatment can be cancelled for high risk patients. For imperative indications, less invasive procedures could be chosen, if available, or measures to diminish the risk undertaken. For most gangrene patients, the indication for amputation is imperative and a less invasive procedure unavailable. Even low risk patients as identified by the present model have significant predicted mortality and could be candidates for risk reducing measures. The suggested type of minimum data set tool is likely to be very suitable for comparative audit regarding mortality after major amputations. Concerning the proposed role regarding individual risk prediction, patients with CLI and imminent or established gangrene are known to be high risk patients for mortality after amputation. It remains to be seen whether the present approach is useful for risk prediction when choosing between performing an amputation or not in such patients.

Reference

- 1 Basu NN, Fassiadis N, McIrvine A. Mobility one year after unilateral lower limb amputation: a modern, UK institutional report. *Interact Cardiovasc Thorac Surg*; 2008 Aug 21 [Epub ahead of print].

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